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nest, the pollinia of the two *Acerates* kept their proper position. Now, when such insects visit flowers of the species to which the pollinia belong, full fertilization may take place—cross-fertilization, too, since they have wandered so far from the original plants.

The modifications of the floral structure of different species enable the plants to avoid competition for the same insects, or for the same parts of the same insects. Thus, bumble-bees have pollinia of *Asclepias Sullivantii* on their claws, of *A. verticillata* on their tarsal hairs, and of *Acerates longifolia* on the hairs of the ventral surface.

As an interesting peculiarity of *Asclepiads* may be mentioned, the occurrence of pollinia in positions in which the flowers are not specially adapted to place them. It has been observed that *Asclepias* sometimes fastens pollinia on the tongues of insects. *Acerates longifolia* accidentally catches the hairs of the face and tongue. In contrast with the *Acerates*, is *Xysmalobium linguæforme*, whose pollinia, according to Mansel Weale,¹⁵ are found regularly on the insect's head, but only accidentally on the hairs of the tarsi and ventral surface.

BRIEFER ARTICLES.

“ Indicative ” *Eriogonums*.—The mountains of Montana are not very high, but they are numerous, extending over a large portion of the territory. Almost wherever prospected they yield precious metals, in some form or other, to the eager searcher after wealth. Even the plains have been found to hide within their vast expanses valuable iron ores and coal.

In the August GAZETTE certain “indicative plants” were spoken of. *Eriogonum ovalifolium* was considered indicative of silver ore in the soil. We have at least three species of the genus in northern Montana, and I am prepared to state that none of them are indicative of anything of the kind. In 1885, Dr. Frank Pottle, in company with the writer, found a large vein of magnetic iron ore in the Belt mountains. The ore also contained small per cents. of copper and silver. Thickly covering the surface soil of this “lead” were large beds of *Eriogonum umbellatum* in an unusual degree of luxuriance. It was towards the end of June, and the many creamy-flowered umbels were at their best. It is highly probable that had some knowing old prospector hunting “signs” as well as gold

¹⁵ Loc. cit., p. 52.

discovered this vein, he would have set *Eriogonum umbellatum* down as a good sign. But it is no sign at all, for it is profuse almost everywhere in the mountains, where there is quartz or other ore, or where there is none. This species appears to confine itself to the mountains, and is common in the Belts and Birdtails, and the ranges about Helena. *E. flavum* is also common, and certainly is a pretty plant. We find it mainly on the plains and in the foot-hills. While *E. umbellatum* seems equally partial to rocky and loamy soil, *E. flavum* is found in rocky or gravelly ground almost exclusively. Like so many of our western plants it has wonderfully long, tough roots, considering its size, which penetrate the soil to a considerable depth, nothing daunted by the stones or other impediments in their downward course. The roots of this plant are covered by a loose, papery bark, brown or blackish in color, beneath which the surface is reddish. I have found them nearly two feet in length, and about an inch thick just below the crown of dead leaves which characterize this and *E. ovalifolium* alike. I have never found the latter growing so abundantly in the mountains as *E. umbellatum*, but it is extremely plentiful on the plains, growing with *E. flavum*. Generally speaking, it is a smaller plant than the two preceding, although the peduncle often exceeds that of *E. flavum*. It may be readily distinguished from the latter by its white appearance, smaller and denser umbels, and small roundish leaves. Often it is remarkably caespitose, forming small hillocks through the accumulation of dead leaves and the earthy substances lodging amongst them. It has been said that reliable Montana prospectors regarded this plant as a good indicator of silver in the soil. It may be so regarded by some, although none of that persuasion have crossed my path; but I am convinced that the growth of this plant is no sign. If it were, then all northern Montana would rest upon a bed of silver. In this vicinity carbonate iron stones underlie the surface, and below them are huge deposits of coal. In some places coal veins eighteen feet thick have been disclosed. A professional assayer, who has assayed many samples of these irons, told me, upon special inquiry, that they averaged from 40 to 60 per cent. in iron. In some instances he found small per cents or mere traces of silver, but in the majority of cases he found none.

This portion of Montana has been prospected over for years, plains as well as mountains, and if silver were as plentiful as the abundance of *Eriogonum ovalifolium* seem to indicate, it would have been brought to light long ago. So far as prospecting is concerned, it is largely a game of chance. It is, in fact, mere gambling. I have heard of cases where professional geologists from Washington have examined a portion of country with a hammer; tapping here, chipping there, and with that and their scientific knowledge of formation combined, have concluded no precious metals were there; while shortly afterward a weather-beaten prospector, with pack horse, pick, shovel and gold pan, would traverse

the same ground and "strike it rich." But it is also well understood that the average professional geologist very much underrates the practical experience and "signs" of the prospector, and vice versa. If each would condescend to grasp and use the knowledge of the other in conjunction with his own, then better results would be obtained and mutual respect would exist between geologists and prospectors, which it can not be said to do to-day.

And although I am sure the abundance or sparsity of *Eriogonum ovalifolium* is no sign as to the presence or the absence of silver or other metal in the soil (for it grows in any formation, lime, sandstone, etc.), I would not presume to say the same of other "indicating plants," individually unknown to me.—F. W. ANDERSON, *Great Falls, Montana*.

Some western plants.—In examining some western collections recently, an interesting fact or two with respect to the range of certain plants has been brought to light. *Phlox Richardsonii* Hook., of the Arctic sea-coast, was found by Mr. F. W. Anderson, in May of this year, growing in great abundance upon Mt. Helena, Montana. It had previously been discovered by Scribner in the Belt Mountains, Montana. Mr. W. M. Canby's corps, on their northern transcontinental survey, discovered a form of *Trautvetteria palmata*, and now it turns up from Idaho, collected by J. B. Leiberg. *Pentstemon Lyallii* Gray, of British Columbia, and extending into the borders of Montana, has been sent in by Mr. J. B. Leiberg from Kootenai county, Idaho, growing on rocky banks, 3,000 to 6,000 feet altitude.—JOHN M. COULTER.

EDITORIAL.

A FEW writers are inclined to scatter their thoughts before the public with a too lavish hand. Facts of interest secured in an investigation are arranged to be presentable and ushered into the presence of the public through the medium of some society or journal. Without adding materially to the number of facts the language with which they are clothed is readjusted and another society or journal receives them. This shifting may be repeated several times, and the facts turn up in various places. Each time the reader, if not on his guard, will naturally suppose he is perusing the first and only statement of the kind, there being nothing to indicate that the author has already published other versions of the same matter. We do not have in mind the case where a paper read before a society is printed in a magazine to secure earlier publication, reference being made to the time and place of its first presentation; or to the case where an article is reprinted in one or more journals, due credit being given; or the case where an author writes up a part of a